DOCUMENT RESUME

ED 064 216 SO 003 189

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TITLE Evaluating the Small Group as a Component of Modular Schedules.
PUB DATE Feb 71
NOTE 7p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Class Size; Educational Innovation; *Evaluation; Evaluation Criteria; *Flexible Schedules; Grouping (Instructional Purposes); *Schedule Modules; School Organization; Secondary Education; *Small Group Instruction

ABSTRACT

The paper presents an evaluation to determine the effectiveness of small student learning groups and, moreover, to identify factors that contribute to small group learning in the overall flexible modular plan. Fifteen schools comprising a total of 91 small groups using flexible modular schedules participated in the study. Techniques to determine group effectiveness included: 1) classrcom observation of behavior to gather data on student satisfaction, talk, participation, and involvement; and 2) administering of a questionnaire in addition to ten scales of the Learning Environment Inventory (LEI) to small groups by teachers. The criteria of effectiveness are expressed in both judgmental and observational terms. The findings show that there is no correlation between group effectiveness in relation to optimism class size, sex of teachers, mod length or number of mods, and little relationship between the observational criteria and students' perception of classroom environment. However, the findings do indicate that small groups are likely to be effective when they indicate high cohesiveness, satisfaction, goal direction, and democracy, while at the same time possessing the characteristics of low friction, cliqueness, and organization. (Author/SJM)

ED 064216

First Draft
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EVALUATING THE SMALL GROUP AS A COMPONENT OF MODULAR SCHEDULES

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SP 003 189

Narrative

In recent years, considerable attention has been focused on the reorganization of American High Schools. One result of this attention has been an increase in the number of schools experimenting with various scheduling options that are collectively called, "flexible modular schedules."

Although there is a lack of consensus on a definition of flexible modular schools, there do seem to be four distinct components that all truly flexible modular schools possess. These components are (1) large groups, (2) small groups, (3) laboratory, and (4) independent study. An underlying assumption of the schedule arrangement is that each of these components can make a unique contribution to student learning.

It is the purpose of this paper to describe in some detail an evaluation of small groups conducted for the purpose of increasing the effective use of small groups in the overall flex-mod plan.

An examination of the objectives of small groups resulted in the selection of several data gathering techniques to determine small group effectiveness. These techniques included: (1) observer ratings,

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Paper presented at an American Educational Research Association Symposium, "The Assessment and Analysis of Learning Environments," New York City, February 5, 1971.

(2) student satisfaction, (3) student talk, (4) student participation, and (5) student involvement. In addition to the descriptive data obtained from the above, relationships between these data and group characteristics were sought. In this way the evaluation study would reveal information along two dimensions; first, a general description of small group activity, and second, an indication of the group characteristics that were related to group effectiveness.

Procedure

A total of 15 schools in the seven county Twin Cities metropolitan area using flexible modular schedules agreed to participate in the study. Participation meant that an external observer would be allowed to visit several classes in each school. In addition, this observer would leave with teachers a questionnaire containing several items in addition to ten scales of the Learning Environment Inventory. The LEI measures student perception of the social environment of learning and is described elsewhere (Anderson and Walberg). The teachers were asked to administer this instrument to their small groups and return the results to us,

During the spring of 1970, a total of 91 small groups were visited by a trained observer in the 15 different secondary schools. The observer structured his visits to gather data along several dimensions. The most important of these were: a timing of student talk in the class, a count of the number of students that actively participated in the class, and a determination of the class interactions that were pupil initiated. These data were gathered to assess the prime objective of small groups, greater student involvement.

In addition, an overall rating of group effectiveness was made, and situational variables were noted; group size, number of boys and girls, sex of the teacher, subject matter, and arrangement. A total of 85 usable observations were made. Six classes were dropped from the study because of unidentifiable student or teacher activity (chaos, students walking in and out, and the like).

Copies of the Learning Environment Inventory (LEI) were left with individual teachers with instructions for them to be administered during the next meeting of the class. The LEI's and questionnaires were collected by the observer during the following week.

Responses of the observations were coded for each class. Similarly, a class mean was computed for each scale of the LEI and each questionnaire item. Basic data statistics for these variables were computed and correlations between the five criteria and several external and internal group characteristics were computed.

Results

The results of the analysis are presented in Table 1. The criteria of effectiveness are expressed in both judgmental and observational terms. Judgments were made by the external observer of the overall effectiveness of the small group on a five-point scale. An estimate of student rating of the small groups was made in response to a questionnaire item, "This small group is a waste of time." A negative response indicated general satisfaction with the class in question.

Observational data consisted of stopwatch timings of the per cent of student talk, a count of the total number of students in the class that expressed themselves verbally, and a count of the interactions in

the classroom that were student initiated, e.g. student to student, or student to teacher.

The mean rating of the observer was 3.1, nearly at the middle of the five-point scale. The main purpose of these ratings was to differentiate among the various small groups.

The mean student rating of small groups was 1.9 on a scale where 1.0 represents most favorable reaction and 4.0 represents unfavorable reaction. Sixty-four per cent of the students did not think their small group was a waste of time. Again, there is no basis for absolute judgment here apart from the fact that the majority of students expressed a positive feeling toward the small group.

The observational data indicated that student talk occupies about 52 per cent of the class time. This compares to several published averages of approximately 15 per cent student talk in regular classes. Also, 79 per cent of the students in the small groups were able to speak at least once during the normal 20-minute module. Finally, there was an average of 16 interactions during the average module. However, only four of these were student initiated, that is, a student speaking to other students, or the student speaking to the teacher. The majority of interactions were teacher initiated.

In an effort to describe the characteristics of those small groups that seemed to be accomplishing high ratings or to consist of a large amount of student involvement, a series of correlations were computed with other data available on the groups. The data were of two different sorts; situational variables that could be manipulated by school administrators, e.g. class size and mod length. The second type of group

characteristic data that was available was internal, that is, the perceptions of the students concerning the social climate of learning. Relationships among these variables would yield clues to various decisions that could be made to improve small group effectiveness.

(See Table 1)

The correlations of the external variables with the five effectiveness criteria reached the chosen .05 level in only three of 25 cases. Hence, there is little here to report to decision makers about optimum class size, sex of the teacher, mod length, or number of mods. This finding is disappointing because it is here that intervention could most easily occur.

Similarly, there was little relationship between the observational criteria and students' perception of the classroom climate, as only three of a possible 20 coefficients exceeded the critical value. The one indication here is that there is less student involvement in those classes that are perceived as being formal.

However, significant results were noted in relating judgmental data with students' perception of the classroom climate. Fifteen of the possible 20 correlations reached the chosen significance level. Certainly part of this is due to intercorrelations among the LEI scales; however, the findings do suggest characteristics of small groups that might lead to greater effectiveness of the group as judged both by members of the class and by an external observer.

Small groups are judged likely to be effective when they indicate high cohesiveness, satisfaction, goal direction, and democracy, while at the same time possessing the characteristics of low friction, cliqueness,

and disorganization. Apparently, the small group functions best when the members of the class are personal friends (cohesiveness), the objectives of the class are specific (goal direction), class decisions tend to be made by all the students (democratic), there are few uncooperative students (friction), students work well together (cliqueness), and the class is well organized.

Discussion

The purpose of this study was evaluative, that is, information was sought that would be useful in making decisions about small groups as a component of flexible modular schools. It appears that data have been obtained that can be used in an effort to improve small group operation. The implications for further study are obvious. The indicated class characteristics that are related to group effectiveness must be introduced into classes through appropriate teacher training techniques to determine their efficacy in increasing group ratings. If manipulating teacher behavior in a specified manner does in fact suggest group improvement, the correlational relationships indicated in the current study will become that rare exception in education; an identified causal factor. Such a follow-up manipulative study is currently in progress.

TABLE 1

RELATIONSHIPS BETWEEN CRITERION VARIABLES AND SMALL GROUP CHARACTERISTICS

	Criteria of Effectiveness				
	Judgmental		Observational		
	Observer Rating	Student Rating	Student Talk (%)	Student Participation (%)	Student Involvement
Mean	3.14	1.89	52.0	79.0	4.16
S.D.	1.19	.36	26.6	26.9	5.95
Group Characteristics	**Correlation Matrix**				
External (N = 85)					
Group Size	-.29			-.26	
Teacher Sex					
Number of Modules		†.22			
Module Length					
Internal (N = 76)					
Cohesiveness	†.29	†.34			
Friction	-.33	-.36		-.22	
Cliqueness	-.24	-.35			
Formality			-.30		-.21
Satisfaction	†.36	†.41			
Difficulty		†.24			
Goal Direction	†.28	†.48			
Democratic	†.23	†.39			
Disorganization	-.44	-.52			
Diversity					

Only significant r's ($p < .05$) reported.